

The Corpus Christi Drinking Water Incident – Houston Laboratory Team (Team) developed two new, time critical, analytical chemistry methods, utilizing a liquid chromatography/mass spectrograph (LCMS) and a gas chromatography/mass spectrograph (GCMS), to detect Indulin AA-86 that was suspected of contaminating Corpus Christi's drinking water distribution system. Additionally, the Team provided 'around the clock' analysis services for over 200 drinking water samples collected during the incident, from confirmatory sampling sites as well as complaint verification sampling.

On December 15, 2016, the Team was notified about a warning issued to Corpus Christi's 320,000 residents not drink or use tap water following a back-flow incident at an asphalt terminal operated by Ergon Asphalts & Emulsions on the property of Valero Energy Corporation. Subsequently, EPA Regional leadership alerted the Team to standby to perform emergency analytical services. Also on December 15, the City of Corpus Christi provided a news release that identified the chemical of concern as asphalt emulsifier, Indulin AA-86, and that City officials estimated the amount of the product involved in the back-flow incident from 3 to 24 gallons.

Initial samples from Corpus Christi's drinking water system were collected by the Texas Commission on Environmental Quality (TCEQ) and sent for analysis to the Department of State Health Services (DSHS) laboratory in Austin. Upon learning the chemical nature of the asphalt emulsifier, DSHS determined that they had neither the expertise or equipment to analyze for Indulin AA-86. Therefore, the Team was tasked with the emergency capability development of an analytical method(s) for Indulin AA-86 in drinking water, and for developing the capacity to analyze numerous and recurring daily samples from the City's drinking water system, as well as, citizen health complaint derived samples on demand.

The Team expeditiously and successfully, within 24 hours, developed not one, but two methods to detect Indulin AA-86 in drinking water, one utilizing a LCMS technique and one utilizing a GCMS technique, with method detection levels of 0.05 mg/l for LCMS and 0.28 mg/l for GCMS.

The Team was able to develop the two analytical methods, calibrate instrumentation, establish detection levels, analyze initial samples, and begin providing analysis results, all within 72 hours of notification of the incident. This herculean effort, and all negative test results, enabled TCEQ to lift the Corpus Christi drinking water advisory on December 18.

Of worthy note, the entire Team of highly qualified and dedicated professionals worked long hours, well past normal work hours and on weekends, to accomplish this emergency mission. None of the over 200 drinking water samples collected from across the City of Corpus Christi water supply system tested positive for the presence of Indulin AA-86 in drinking water at method detection levels.

In addition to the Houston Laboratory Team, the Superfund Emergency Response and Enforcement Teams jumped into gear beginning on December 14<sup>th</sup> to begin understanding the extent and scope of contamination of the drinking water supply, and begin the process of investigating the release to identify the parties involved and collect information for future use.

The Emergency Response team dropped everything to mobilize to the site on December 14 to begin coordination of efforts with local and State agencies and contractors to coordinate remediation efforts, and sample collection and analysis.

The Superfund Enforcement Team worked extra hours over several days, in coordination with the Emergency Response Team, to begin the investigation process to identify responsible parties and gather information to understand all aspects of the incident. Careful coordination with the Texas Attorney General's Office, TCEQ, and the companies Ergon and Valero was critical in being able to quickly resolve issues and achieve clarity regarding the who, what, when, where and why of the drinking water contamination incident.